



CONSTRUCTION BATTERY EQUIPMENT
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CLOSED LOOP INDUSTRIAL





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CLOSED LOOP FORMATION MOD. 6.80B&C-I

Module for the formation of industrial elements with acid recirculation in a closed loop cycle

This is the innovative system to reduce time in formation cycle of the industrial elements for these reasons:

- the use of a low density acid enhances the electro chemical transformation of the paste, granting –with the same level of Ah used– a higher percentage of PbO₂
- The continuous circulation of acid, helps the release of gas molecules on plate' surfaces, optimizing the charge efficiency.
- The acid circulation grants a constant and correct temperature inside the element, avoiding the risk to damage separators and plates. So we can charge the elements pushing with high current and reducing the charging times.

The heat, the gases and aerosol are took away by the circulation acid process, while the cells are filled at the beginning of the process, with the selected acid density/formation cycle on the main management plc. At the end of the charge, the correct final density of acid will be inserted into elements.

Is suitable for all companies that have space or not in the formation area. Moreover, if you already have a closed loop formation, you can install a separate standing alone one.

Mainly we have two models of module:

- Type 6.80B-I is a base module for the companies that already have the possibility to connect it to a main network for acid, cool water, demi, air suction
- Type 6.80C-I that is the standing alone "ALL-IN-ONE" module, which includes all the necessities with proper tanks, coolings and scrubbing systems

The module 6.80B-I is self working, autonomous, and engineered so to prevent the increase of the acid that (in competitor's system) normally comes and is around 30%. This avoids its re-titration and where not possible, to collect a huge quantity of diluted acid.

Technical description module 6.80B-I:

Module composed of 6 positions. In each bench it is possible to connect max 80 industrial elements per formation cycle. The cells should be displayed onto 2 pallets in a nr of 40 elements. Totally the module 6.80B-I can accept 480 elements.

Materials used:

AISI 316L stainless steel massive frame where the tank, the elements motorized conveyors, the manifold to supply the elements, the electrical cabinet are installed.

Manifold supply of the acid to elements, including filling plugs, and pipings

Electrical cabinet and panel to manage and control all the system, safeties and software for the process, with recipes storage and data acquisition.

The module 6.80B-I is composed as follows:

- PPS tank and pump for acid circulation, piping and valves, filters and all related parts.
- Cooling element, with temperature and concentration control devices, level controls
- nozzles to connect to all utilities like water, acid and air.
- boxes with cables to be connected to elements.

The module needs to be connected to main supply network of: concentrated acid (1.840 gr/l); demineralised water; cooled water T max; air suction; rectifiers cables to local boxes; relais on rectifiers to link to module management software